Human IL-3
premium grade

10 µg	130-095-071
25 µg	130-095-070
100 µg	130-095-069
1000 µg	130-095-068

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1. Description

Components	**Human IL-3, premium grade:** Purified recombinant human interleukin 3.
Sizes	10 µg, 25 µg, 100 µg, 1000 µg.
Biological activity	The ED_{50} is ≤0.5 ng/mL* corresponding to a specific activity of ≥2×10^6 IU/mg.
Primary structure	Single, non-glycosylated polypeptide chain (133 amino acid residues).
Molecular mass	15.1 kDa, determined by mass spectrometry.
Source	Produced in *E. coli*.
Product format	Lyophilized from a filtered (0.2 µm) buffer solution.
Stabilizer	Mannitol and trehalose.
Purity	>97% as determined by SDS-PAGE analysis.
Endotoxin level	Low endotoxin (<1.0 EU/µg cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.
Storage	Lyophilized Human IL-3, premium grade should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C. Avoid repeated freeze-thaw cycles.
Reconstitution	It is recommended to reconstitute lyophilized Human IL-3 with deionized sterile-filtered water up to a final concentration of 100 µg/mL. ▲ **Note:** Addition of carrier protein, such as 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) may have stabilizing effects. Further dilutions should be prepared with 1% BSA or HSA in phosphate-buffered saline (PBS).

* The ED_{50} is determined by proliferation assay using TF-1 cells according to Kitamura *et al*[1]. The proliferation assay was calibrated with the international standard for human IL-3 (NIBSC code 91/510) provided by the WHO/National Institute for Biological Standards and Control.

1.1 Background information

Interleukin-3 (IL-3) is a hematopoietic growth factor which is produced mainly by activated T cells, but is also secreted by other cell types, including mast cells, eosinophils, and keratinocytes. The broad spectrum of biologic activities of IL-3 includes the stimulation of the proliferation and differentiation of immature pluripotent hematopoietic stem cells and various lineage-committed progenitor cells, leading to the production of most of the major blood cell types. In addition, IL-3 also affects the functional activity of mature mast cells, basophils, eosinophils and macrophages.

1.2 Applications

Human IL-3 can be used for a variety of applications, including:

- Induction of colony formation from hematopoietic progenitor cells in semi-solid medium *in vitro*, for example, $CD34^+$ cells from umbilical cord blood[2],
- *in vitro* differentiation studies, for example, of B lymphoid progenitors[3],
- cultivation of plasmacytoid dendritic cells[4],
- investigation of mast cell or basophil function, for example, basophil interaction with blood vessels[5],
- investigation of IL-3-mediated signaling pathways.

Optimal concentration for a specific application should be determined by a dose-response experiment.

2. References

1. Kitamura, T. *et al.* (1989) Establishment and characterization of a unique human cell line that proliferates dependently on GM-CSF, IL-3, or erythropoietin. J. Cell Physiol. 140: 323–334.
2. Rossmanith, T. *et al.* (2001) Interleukin 3 improves the *ex vivo* expansion of primitive human cord blood progenitor cells and maintains the engraftment potential of SCID repopulating cells. Stem Cells 19: 313–320.
3. Crooks, G. M. *et al.* (2000) IL-3 increases production of B lymphoid progenitors from human $CD34^+CD38^-$ cells. J. Immunol. 165: 2382–2389.
4. Tas, S. W. *et al.* (2007) Noncanonical NF-kappaB signaling in dendritic cells is required for indoleamine 2,3-dioxygenase (IDO) induction and immune regulation. Blood 110: 1540–1549.
5. Lim, L. H. *et al.* (2006) Stimulation of human endothelium with IL-3 induces selective basophil accumulation *in vitro*. J. Immunol. 176: 5346–5353.

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